

ABSTRACT

An anaerobic digester is disclosed including a single orbicular vessel having two chambers configured for the separate treatment of high-solids and low-solids phases of organic matter. The vessel combines a high solids, plug flow path wherein low solids liquids are separated and directed to a high rate treatment path. The invention provides a novel and simple apparatus for the anaerobic conversion of both high solid and low solid wastes to methane, carbon dioxide, a liquid effluent that can be used as fertilizer, and a solid residue that can be used as a soil amendment. The invention combines the advantages of high solids loop digesters and low solids high rate digesters into a single orbicular vessel. Due to the orbicular geometry, in which a first chamber is a path surrounding and orbiting a second chamber, the apparatus has greater thermal and material efficiencies.